

Claims

1. A microfabricated binding assay device comprising:
- 5 (1) a microfabricated diffusion chamber,
(2) a diffusion region within the microfabricated diffusion chamber, and
(3) at least one inlet for introducing liquid into the microfabricated diffusion chamber and for introducing into the diffusion region a mixture comprising a test compound, a receptor and,
10 optionally, a ligand, such that in use the ability of the compound to prevent the binding of the ligand, if present, to the receptor, or the ability of the test compound to bind the receptor, is determined by reference to the diffusion of the test compound, the receptor or the ligand of the diffusion region.
- 15 2. A microfabricated binding assay device comprising;
- (1) an internal surface defining a microfabricated conduit,
(2) a diffusion region within the microfabricated conduit which defines an area which is smaller than the area of cross section, or of the length, of the microfabricated conduit,
20 (3) the microfabricated conduit having at least one inlet for introducing liquid into the microfabricated conduit and for introducing into the diffusion region a mixture comprising a test compound, a receptor and, optionally, a ligand, and
(4) an outlet for exiting liquid from the microfabricated conduit, such that in use the ability of the compound to prevent the binding of the ligand, if present, to the receptor, or the ability of
25 the test compound to bind the receptor, is determined by reference to the diffusion of the test compound, the receptor or the ligand out of the diffusion region.
3. A device as claimed in claim 1 or 2 further comprising a detector for detecting the presence of test compound or ligand
- 30 4. A device as claimed in claim 3 wherein the outlet is split into two channels.

5. A device as claimed in claim 3 wherein the two channels divide the area of laminar flow into two parts the first which is the diffusion area and the second which is the remaining part of the laminar flow.

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6. A device as claimed in claim 5 wherein the channel containing the remaining part of the laminar flow additionally comprises a detector for detecting the presence of test compound or ligand.

10 7. A method for determining in a microfabricated device the ability of a test compound to either interfere with the binding of a ligand to a receptor or to bind with a receptor, which method comprises:

- 15 (1) introducing liquid into a microfabricated diffusion chamber,
(2) introducing a mixture comprising a test compound, a receptor and, optionally, a ligand into a diffusion region of the liquid filled microfabricated diffusion chamber, the volume of the diffusion region being smaller than that of the diffusion chamber, and
(3) detecting the diffusion of the test compound, the receptor or the ligand out of the diffusion
20 region.

8. A method for determining in a microfabricated device the ability of a test compound to either interfere with the binding of a ligand to a receptor or to bind with a receptor, which method comprises:

- 25 (1) introducing liquid into the microfabricated conduit,
(2) introducing a mixture comprising a test compound, a receptor and, optionally, a ligand into a diffusion region of the microfabricated conduit, the diffusion region defines an area within the microfabricated conduit which is smaller than the area of cross section, or of the length, of the microfabricated conduit, and
30 (3) detecting the diffusion of the test compound, or the ligand, if used, out of the diffusion region.

"FOOTNOTES" 200009200

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